TECAPEEK CMP natural - Stock Shapes (rods, plates, tubes)

Chemical Designation
PEEK (Polyetheretherketone)

Colour
beige opaque

Density
1.31 g/cm^3

The values in this data sheet are tested on a dimension outside of the standard reference dimension (rod Ø 40-60 mm).

Main features
- good heat deflection temperature
- good machinability
- inherent flame retardant
- hydrolysis and superheated steam resistant
- resistance against high energy radiation
- good slide and wear properties
- high toughness
- high creep resistance

Target Industries
- semiconductor technology

Mechanical properties	condition	value	unit	test method		comment
Tensile strength	50mm/min	110	MPa	DIN EN ISO 527-2		(1) For tensile test: specimen type 1b (2) For flexural test: support span 64mm, norm specimen. (3) Specimen 10x10x10mm (4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression. (5) For Charpy test: support span 64mm, norm specimen. n.b. = not broken (6) Specimen in 4mm thickness
Modulus of elasticity (tensile test)	1mm/min	4100	MPa	DIN EN ISO 527-2	1)	
Tensile strength at yield	50mm/min	110	MPa	DIN EN ISO 527-2		
Elongation at yield (tensile test)	50mm/min	4	%	DIN EN ISO 527-2		
Elongation at break (tensile test)	50mm/min	50	%	DIN EN ISO 527-2		
Flexural strength	2mm/min, 10 N	160	MPa	DIN EN ISO 178	2)	
Modulus of elasticity (flexural test)	2mm/min, 10 N	3900	MPa	DIN EN ISO 178		
Compression strength	1% / 2% 5mm/min, 10 N	15 / 34	MPa	EN ISO 604	3)	
Compression modulus	5mm/min, 10 N	3200	MPa	EN ISO 604	4)	
Impact strength (Charpy)	max. 7,5J	n.b.	kJ/m^2	DIN EN ISO 179-1eU	5)	
Notched impact strength (Izod)		4	kJ/m^2	DIN EN ISO 179-1eA		
Ball indentation hardness		240	MPa	ISO 2039-1	6)	

Thermal properties	condition	value	unit	test method		comment
Glass transition temperature		151	°C	DIN EN ISO 11357		(1) Found in public sources. Individual testing regarding application conditions is mandatory.
Melting temperature		340	°C	DIN EN ISO 11357		
Heat distortion temperature	HDT, Method A	162	°C	ISO-R 75 Method A		
Service temperature	short term	300	°C		1)	
Service temperature	long term	260	°C			
Thermal expansion (CLTE)	23-60°C, long.	5	10^{-5} K^{-1}	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	23-100°C, long.	6	10^{-5} K^{-1}	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	100-150°C, long.	7	10^{-5} K^{-1}	DIN EN ISO 11359-1;2		
Specific heat		1.1	J/(g*K)	ISO 22007-4:2008		
Thermal conductivity		0.27	W/(K*m)	ISO 22007-4:2008		

Electrical properties	condition	value	unit	test method		comment
surface resistivity	Silver electrode, 23°C, 12% r.h.	10^{15}	Ω/square	DIN IEC 60093	1)	(1) Specimen in 20mm thickness (2) Specimen in 1mm thickness
volume resistivity	Silver electrode, 23°C, 12% r.h.	10^{15}	Ω*cm	DIN IEC 60093		
Dielectric strength	23°C, 50% r.h.	73	kV/mm	ISO 60243-1	2)	
Resistance to tracking (CTI)	Platin electrode, 23°C, 50% r.h., solvent A	125	V	DIN EN 60112		

Other properties	condition	value	unit	test method		comment
Water absorption	24h / 96h (23°C)	0.02 / 0.03	%	DIN EN ISO 62	1)	(1) Ø ca. 50mm, h=13mm (2) + good resistance (3) - poor resistance
Resistance to hot water/ bases		+		-	2)	
Resistance to weathering		-		-	3)	

- TECAPEEK products are based on Victrex® PEEK polymer.

Information about products and services sold by Ensinger, including without limitation information contained in this document do not constitute a warranty by Ensinger as to the quality and state or durability of products or services, or any guarantee of chemical resistance. Such information reflects the current state of our knowledge and is intended only to assist and advise the recipient. The recipient shall not be entitled to rely on Ensinger provided information and the recipient agrees to evaluate such information, to make an independent decision regarding the suitability of such information, products and services for its application, and only use such products, services and information pursuant to then current good product stewardship principles and all regulatory requirements applicable to the recipient's business. Values are guidelines that can be used for comparative purposes in material selection. They are within the normal range of product properties and do not represent guaranteed property values. Testing under individual application circumstances is always recommended. Data is obtained from extruded shapes material unless otherwise noted. References to FDA compliance refer to the resins from which the products were made unless otherwise noted. Data sheet values are subject to periodic review and the most recent update can be found at www.ensingerplastics.com

Ensinger Inc. Headquarters 365 Meadowlands Boulevard Washington, PA 15301, USA
Phone 800-243-3221 Sales Phone 800-869-4029
Technical Fax 724-746-9209
sales@ensingerusa.com
Date: 2017/03/28
Version: AB